



# Partnerships For Environmental Public Health

Workshop Final Summary

June 30-July 1, 2008

National Institute of Environmental Health Sciences  
**Partnerships for Environmental Public Health**  
**Workshop**  
June 30 – July 1, 2008  
Research Triangle Park, North Carolina

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## Introduction

This document is a summary of the discussions and recommendations from a day and one half workshop convened by the Division of Extramural Research and Training (DERT) at the National Institute of Environmental Health Sciences (NIEHS). The purpose of the workshop was to provide guidance for the development of a framework for a new program called Partnerships for Environmental Public Health (PEPH) and build upon the responses received from a national solicitation for comments through a prior [Request for Information](#) (RFI). This document captures the main concepts communicated by the invited workshop participants rather than a verbatim summary of all discussions.

## Background

NIEHS has been a long-standing leader and an innovator in promoting partnerships between community groups and researchers to address local, real-world environmental health concerns. Through DERT, this work began in 1994 with a focused effort on Environmental Justice to build communication models for providing community residents with the skills and necessary capacity to become involved in the research process with environmental health scientists and health care professionals (<http://www.niehs.nih.gov/research/supported/programs/justice/highlights.cfm>). NIEHS soon developed complementary extramural programs designed to increase community awareness of environmental health through outreach and science education (<http://www.niehs.nih.gov/research/supported/programs/ehsic/highlights.cfm>). NIEHS also developed research-intensive programs that required partnerships between community groups and researchers to address environmental health concerns of the communities. In addition, NIEHS established collaborative education and training programs with the US Environmental Protection Agency to address environmental health issues resulting from hazardous waste contamination. By virtue of these initiatives the institute learned more about gaps in research, communication needs and capacity building, and modified its programs accordingly to address new areas of the social and built environments and the ever challenging issue of health disparities.

Through sustained support of these programs NIEHS has become a trusted source for environmental health information and a champion of community-based environmental health. Projects supported by the various extramural programs developed myriad materials, communication models, and research strategies that have led to notable educational, public health and policy impacts. Many of these materials were made available to the public through a web-based repository during the years 2000-2006.

By 2004, the institute supported eleven different extramural programs that fit within the field of public health. The activities of the programs could be categorized into the following areas:

1. Community Outreach
2. Education and Training
3. Community-based Participatory Research

Over the past year, NIEHS conducted two central information gathering activities to inform the development of a new ten year plan to build upon the institute's past successes, coordinate the institute's existing extramural programs and consider new strategies to maintain a pre-eminent position in environmental public health (EPH – See definition in appendix). In November 2007, the institute released an RFI to solicit input from a broad spectrum of groups involved in environmental public health issues. Then, in June 2008, NIEHS convened a workshop of thought leaders to provide guidance on the creation of the ten year plan. Following is the summary of recommendations and key issues identified by meeting participants.

## PEPH Workshop Organization and Rationale

Members of a PEPH Working Group organized the June workshop to engage a diverse set of communities with different perspectives and areas of expertise pertinent to environmental public health. The committee identified certain groups from the responses to the RFI. The full list of participants and their area of expertise is included at the end of this summary. The organizing committee invited individuals with familiarity of NIEHS and its mission as well as individuals with little to no familiarity, but who were leaders in a field that could benefit the new PEPH program. The idea was to stimulate new ways of thinking and consider novel approaches to long-standing issues and questions. The organizing committee provided all participants with the RFI Executive Summary and a proposed model for PEPH (see appendix) so that they could ground their feedback and comments on the report and model.

The organizing committee structured the workshop around three key sessions that focused on a specific question (see below). Each session had three components: an introductory panel, break-out discussions and a report-back period. The introductory panel was composed of five to seven participants each sharing their views. After any clarifying questions, attendees split into four pre-assigned break-out groups. The break-out groups engaged in a discussion related to the designated question for that session. At the end of the break-out discussion, all workshop attendees reconvened to share the most significant concepts discussed in the break-out groups.

### Session Questions

- 1) In the environmental public health field, what issues and un-met needs are faced in the areas of building capacity, evaluation, communication, and research?
  - a. What are the most important **Tools** needed?
  - b. What creative new **Strategies** can be used?
  - c. What **Resources** are needed (beyond money)?
  - d. What **Partnerships** should be fostered?
- 2) What is NIEHS' unique role in helping identify and foster solutions to the following:
  - a. Building capacity
  - b. Evaluation
  - c. Communication
  - d. Research
- 3) How would you balance and prioritize the diversity of critical areas/needs in EPH?

## Charge to Participants

Drs. Wilson and Collman welcomed the participants to the workshop and outlined their charge. Dr. Wilson emphasized the need to identify NIEHS' unique research and communication role in environmental public health to address real-world environmental health concerns. Dr. Collman stressed that workshop participants should address the broader issues of the community they represent and not their individual projects.

## Key Recommendations

Over the two day workshop, participants shared many valuable recommendations to NIEHS staff members. The recommendations have been organized into the following categories: Criteria and Concepts for PEPH, Products, and Processes and Activities. In this report, we have attempted to distinguish between recommendations that are directed toward the development of an extramural program and those directed at the institute in general.

## Criteria for PEPH

Participants emphasized the need for PEPH to be **nimble**. Many times participants noted the need for a program to be responsive to current issues that are emerging both in research and in the field (i.e. at the community level). In addition, the program should address both specific environmental exposures with known disease endpoints, as well as cumulative exposures over the lifecourse of an individual. The program should also be able to respond rapidly to emerging environmental public health issues, including man-made and natural disasters, and have the ability to utilize new scientific findings and discoveries from the bench and apply them to community concerns.

PEPH must support **gold standards** in research, capacity building, evaluation and communication. Participants stated that this program must promote the best science, including both quantitative and qualitative research. They emphasized the importance of evaluation to insure the quality of the work being supported through PEPH. Community-based participatory research (CBPR) as a research approach was recommended to be an essential characteristic of PEPH and highlighted as a best practice in community-based programs. The principles of CBPR should be adopted by the PEPH program to insure it remains responsive to community needs. Several participants emphasized the need for PEPH to foster a two-way dialogue between researchers and community members. The “Bench-to-Trench” philosophy is only one half of the process, and that to foster equality within PEPH, there is also a need for mechanisms that allow “Trench-to-Bench” communication of issues. Without a foundation of quality science, the information disseminated to the larger community will be questioned. Information communicated through the PEPH program must be of highest quality. Participants recommended that NIEHS establish a mechanism to assess the quality of information being communicated by PEPH grantees so that only materials deemed to be of highest quality will be made available on the NIEHS web space.

PEPH must advance **research to action**. Research supported through PEPH should lead to the development of tools, materials, and resources that can be used by different audiences to promote health and prevent exposures that may lead to adverse health outcomes. Participants noted the importance of implementation science, research translation, and prevention-focused projects. Some participants recommended that the term “outreach” be replaced with “partnerships” to emphasize a two-way dialogue.

As a coordinating, umbrella program, PEPH must promote **integration** of its five proposed components: Research, Capacity Building, Communication, Evaluation, and Coordination (see Proposed PEPH Model in appendix). Several participants articulated the need to integrate research within communication and capacity building efforts. Others emphasized the importance of integrating evaluation into all components of PEPH. In addition, participants noted that science should be embedded within the community. Science must be seen as an integral component of community. Residents have a role in identifying research questions and conducting research to address environmental health concerns.

## Concepts for PEPH

Participants identified many different concepts that should be addressed by the PEPH program. Following are key recommendations within the four main components of the PEPH program: Research, Capacity Building, Communication and Evaluation. Some recommendations cut across the different components and may show up more than once.. In some instances the recommendations are more appropriate to the institute, rather than the PEPH program itself.

### Research

A variety of critical PEPH research themes emerged from the discussions. The ideas have been synthesized into several broad categories, Research Areas, Evaluation of Research, Communication of Research Findings and Research Capacity Building.

**Research Areas:**

- NIEHS needs to conduct a cross-Agency “needs assessment” to identify the current research gaps.
- The definition of “environment” should remain broad.
- The PEPH research program should be responsive to contemporary concerns, focusing on current emerging and re-emerging exposures, but also be able to adapt as these priority areas for EPH change in the future.
- Research should focus on areas with the potential to reduce and eliminate health disparities.
- Research should focus on health outcomes that are of the greatest importance to a diverse set of populations.
- Research should take into account the cumulative health impacts of multiple exposures.
- NIEHS should continue to support current PEPH-like programs (e.g., EJ, CBPR) and keep them as distinct programs (i.e., do not let these programs be completely absorbed within PEPH).

**Evaluation of Research:**

- PEPH should identify and/or develop EPH-specific evaluation tools, set of “best practices”, etc.
- Standards and expectations for evaluation of research programs should be stated from the beginning.
- Funds to conduct evaluation should be included in individual PEPH grant awards or used to support an outside “evaluation core.”

**Communication of Research Findings:**

- NIEHS should continue effort to push the translation and communication of scientific research findings to appropriate audiences (community groups, policy makers, etc.) at multiple levels (local, state, national)
- NIEHS should make community partnerships mandatory for all research grants
- NIEHS should make communication of scientific research findings mandatory for all grants (e.g., NSF model to mark 5% of budget for such activities).

**Research Capacity Building:**

- NIEHS should make an effort to increase acceptance of qualitative research methods among the NIH community, and in particular, try to increase the number of study section members that have expertise in and/or appreciate such methods.
- NIEHS should try to increase the number of study sections members with EPH expertise.
- NIEHS should support EPH training at all levels.

**Capacity Building**

Participants identified several target audiences that must be considered with regard to building capacity and addressing training needs. The participants emphasized the importance of social relationships and the need to build upon the successes of past programs within the NIEHS as well as other federal agencies. While the participants acknowledged the need to build capacity of many different groups, their recommendations focused on two primary groups: community residents/organizations and researchers.

**Community-focused**

Training is needed at the community based organization level, especially in the capacity of basic environmental public health, as much as training for graduate level researchers in the various research areas, such as Community Based Prevention/Intervention, Health Disparities, etc. Basic science literacy in EPH within Community-based Organizations (CBOs) is essential for communities to actively participate as equal partners in research projects. For example, CBO interaction on community intervention projects requires CBO staff to have a basic and reasonable understanding of basic science concepts and principles so they may clearly articulate them to target audiences. In the area of environmental health impacts, public/ community health educators are a key element to sustaining and creating a culture of scientific health literacy in organizations. Educators can

provide the basis for understanding and translating what is happening in the community to the research community. Training is needed in the following areas:

- Collecting information on health indicators
- Administering surveys and questionnaires
- Assessing community health impact
- Communicating health impacts, risks, and data to citizens
- Participating in intervention/prevention strategies and activities
- Being a creditable voice for health literacy and education in the community
- Evaluating the impact of community based training or education

#### Researcher-focused

EPH students, trainees and researchers should receive training on community based work and how to engage community residents in research from the CBO side and be able to communicate research and risk to residents effectively. Participants noted the importance and relevance of the nine key principles of CBPR that support successful research partnerships identified by Barbara Israel and her colleagues in Michigan. [Israel B, Schulz A, Parker E and Becker A. (1998). Review of community-based research: Assessing partnership approaches to improve public health. Annual Review of Public Health, 19, pp. 173-202]. The nine principles are:

- Recognizes community as an unit of identity
- Builds on strengths and resources within the community
- Facilitates collaborative, equitable involvement of all partners in all phases of the research
- Integrates knowledge and intervention for mutual benefit of all partners
- Promotes a co-learning and empowering process that attends to social inequalities
- Involves a cyclical and iterative process
- Addresses health from both positive and ecological perspectives
- Disseminates findings and knowledge gained to all partners
- Involves long-term commitment by all partners

Participants recommended increased opportunities for fellowships and internships to promote understanding of science and culture. These opportunities should be bi-directional, where residents work in a research setting and researchers can work at the community level.

Participants also emphasized the need to support and encourage new methods or mixed methods of community based research under the PEPH program. Key resources include the Community-Campus Partnerships for Health (CCPH) Report (<http://depts.washington.edu/ccph/cps-summit.html#Products>), which has been adopted by the American Public Health Association (APHA) ([http://depts.washington.edu/ccph/pdf\\_files/CBPR\\_Policy\\_Accepted\\_by\\_APHA\\_2004.pdf](http://depts.washington.edu/ccph/pdf_files/CBPR_Policy_Accepted_by_APHA_2004.pdf)).

Other successful models of building capacity in EPH previously funded by NIEHS should be examined and shared. Examples include the NIEHS Worker Education and Training Program (WETP) and the Center for Occupational Safety and Health (COSH) groups.

Finally, participants recommended targeted training to increase better coordination between public health departments and researchers in EPH.

#### Partnership and alliance building

Partnership and alliance building is also a critical component of building capacity to conduct work in the field of EPH. To reach diverse populations and increase science literacy so that these groups can participate in the research agenda, communities must be compensated for their participation while conducting outreach to obtain study participants, engage in prevention strategies, and other areas of education, outreach, and research intervention. Simply stated, funding provided to CBOs for their participation in EPH is critical to their active participation. Also providing funding for Community Outreach and Education Cores (COECs) at all NIEHS-

funded Centers, not just Environmental Health Science (EHS) Core Centers, should be considered as a mechanism to engage communities across the country. All of this should be considered as building on the NIEHS long standing investment in EPH.

Participants also noted the need for NIEHS to build partnerships with Foundations to address training requirements for community organizations and researchers.

### Communication

In general, participants expressed the need for NIEHS to have a strategic plan for communication, both internal to the NIEHS and through the extramural community (through the Centers and grantees). NIEHS needs to make a long-term commitment to sustained communication efforts. The key recommendations from participants follow. Within this section, there are many recommendations that are more appropriate to the institute as a whole, rather than to PEPH specifically.

Establish NIEHS as a top source for science-based materials and information on EPH topics.

- A goal of the program should be to make “NIEHS” a household word. Participants expressed the need to advertise the role of NIEHS in PEPH-related work and to ensure that key NIEHS resources, such as the Centers, are well known and associated with NIEHS.
- Participants suggested that the following material formats are appropriate for PEPH-related activities: fact sheets, templates, graphics, and curricula.
- Participants expressed a need and a role for NIEHS to develop clearly articulated definitions.
- All Information must be endorsed/branded/vetted by NIEHS to ensure that it is scientifically correct, credible, current, and of high quality.

Establish Communication Strategies

- Develop communication strategies within NIEHS among the various offices and divisions, especially the Division of Intramural Research (DIR), the Office of the Director (OD), the Division of Extramural Research and Training (DERT) and the Office of Communication and Public Liaison (OCPL)
- NIEHS should work to improve its coordination and communication between Local, State and Federal environmental health practitioners. It is essential to delineate role of NIEHS with other federal agencies, foundations and professional organizations working in EPH.
- NIEHS should educate policy groups about EHS and public health and how they are interrelated.
- PEPH should establish mechanisms to improve communication among extramural scientists doing EPH-related work. Participants expressed a need for PEPH to foster better dialogue among the various research programs and encourage cross program grantee meetings. As part of this effort, NIEHS should convince rest of field that communication and translation is important, and that materials need to be translated from research to the community level. Tell stories of how community inputs have changed research.
- Participants recommended implementing strategies to insure greater bi-directional information exchange. Specifically, participants suggested that NIEHS host and support town hall style listening sessions to understand EPH issues of concern. In addition, participants recommended investing in focus groups, polling, etc. to find out what the public wants to know.
- NIEHS should highlight the best science through various “marketing” schemes to increase public awareness of EPH issues.

Enhance science literacy

As noted in the Capacity Building section, there is an expressed need to focus on science literacy of the general public. As part of this effort NIEHS needs to make the public aware of what “environmental health” actually is. Therefore participants recommended that PEPH focus on issues of environmental health literacy- especially as it pertains to risk communication. In addition, PEPH must address the public need to understand the uncertainty of science, and that science is not about “absolutes.” To accomplish this, participants emphasized the following.

- Curriculum is important at all levels in this issue:



- Kindergarten through 12<sup>th</sup> grade (K-12)
- Continuing Education courses for public health professionals and nurses
- Community education programs
- Scientists need 'training' on community-based approaches – development of undergraduate and graduate courses. Fellowships.
- NIEHS needs to work with the Education community
  - In particular, PEPH could exploit the role of science teachers in expanding capacity in environmental health sciences. Presently, science teachers have very little knowledge of EH issues. However, to get environmental health into the classroom, efforts will need to be taken to get EHS into state science standards. In addition, professional development activities will need to be developed for teachers.
  - Partner with professional associations, especially the National Science Teachers Association and the National Biology Teachers Association, as well as engaging the State Departments of Education will be very important strategies in addressing this need.
  - PEPH can promote mentoring of teachers and students to provide them with the necessary skills and understanding of EHS.
- NIEHS should require COEC in EHS Core Centers. Removing the requirement for COEC allows EHS Core Centers to drop it because quality community outreach and education is hard to do. However, quality outreach and education needs to be done.

#### Train effective communicators for EHS

There is a particular need for people skilled in communicating environmental health concepts to diverse audiences. As such, training is needed in communication and communication specialties in general as well as in risk communication and scientific uncertainty. In particular, participants emphasized that researchers also need to be trained and convinced to communicate findings at local level. As part of this strategy, PEPH could create an "expert bureau" of leaders in various fields relevant to the NIEHS mission, and offer administrative supplements to encourage grantees to talk to the general public about their research.

#### Work with journals and media fields

Participants commented on the importance of working more effectively with journals and different media to extend the reach of environmental public health messages beyond the traditional scientific journals and web pages. In particular, participants recommended that:

- NIEHS should work with environmental journal groups and newspapers to educate them about reporting EH issues. NIEHS staff members should write Op-eds and get them into more publications/journals. As part of these articles, tell the story of how community inputs have changed research.
- NIEHS should work with/train grantees on how to do effective media outreach. Bring together several desperate communities together with media/ journalist.
- NIEHS should utilize emerging media streams such as:
  - YouTube
  - Wikipedia
  - Blogs
  - Webinars
- Participants recommended expanding the reach of Environmental Health Perspectives, which is a strong publication with great credibility.

#### Promote information sharing and mentoring

Participants noted that there are many existing communication and evaluation models, strategies, and tools developed by NIEHS-funded grantees and others, but that there is little opportunity to share them with others who might benefit. Therefore, participants recommended that PEPH establish some way to foster those interactions. That as part of such interactions, there be the opportunity to show community groups how to use

tools such as handheld devices to measure air quality, sound/noise, traffic counting, etc and turn the general population into street scientist.

#### Build partnerships

- Make sure partnerships are made with state groups and federal partners to ensure we are part of the national discussion.
- Establish partnerships with industry, businesses
- Work closely with Foundations, Advocacy groups, and Local Community Groups to build stronger coalitions. They must be engaged from the beginning. The dialogue must be in both directions.

#### Foster community interactions

- Develop a partnership professional to serve as the liaison with community groups
- Assess community needs
- Find new ways to get students within a community interested in the EHS issues being explored
- Tell story of how community inputs have changed research
- Address cultural interactions/considerations that need attention (e.g. health disparities)

### Evaluation

A framework for evaluation is needed at the inception of the program to

- Lay out specific expectations for evaluation & create an evaluation culture
- Frame evaluation as an opportunity for improvement, not pass/fail judgment
- Address all stages of the process and all components of the PEPH program
  - Include specific process evaluations to look at early-middle stages of activity
- Build evaluation capacity among grantees
- Develop PEPH specific evaluation approaches
- Provide resources for grantees to conduct the evaluation
  - Includes financial resources and training/models/methods/access to evaluation materials
- Ensure reviews include evaluation expertise
- Encourage involvement of all stakeholders in the evaluation process

#### Key challenges

- Evaluating long term outcomes require long term tracking of program information (and commitment, and time to develop partnerships)
- Lack of approaches/means to attribute outcomes to specific funding sources
- Much of evaluation theory done in a "lab" setting, not in the real world
- NIH emphasizes quantitative approaches, and often evaluation is qualitative due to the nature of the questions, and resources available
- We have a mandate to be accountable, but need clearance to ask questions

#### Participants proposed specific evaluation metrics for PEPH

- Ability to build capacity
  - What individuals are trained by the program (trainees/research associates/community members/scientists)?
  - Are more staff in partner organizations participating in the project?
  - Does the project produce a set of common resources that can be used by others or by same partners in the future?
  - Do partners feel they are better off for participating?
  - Are meetings held where it is convenient for partners (i.e., not on campus)?
- Strength of partnerships

- Mentoring
- Publications are important but don't tell the whole story
- Gaining knowledge
- Disseminating information
- Public policy changes
- Health status

Specific items that participants said should be evaluated

- Success of community outreach cores
- Prior program elements to determine outcomes and frameworks for success
- Materials going to the resource center

Specific suggestions for implementing evaluations

- Information from evaluations needs to be focused on improving programs and informing decisions
- Award planning grants to allow for development of evaluation activities
- Create an entity (contractor/U01/coordinating center, etc) to conduct evaluations within the program
- Assist grantees in developing logic models for evaluation
- Require/provide resources within the grant mechanisms to do evaluation
- Consider need for firewalls between those who are evaluating and those being evaluated
- Ensure that individual project goals fit with broader PEPH, NIEHS, and NIH goals
- Expectations about evaluation need to be managed

Existing resources that could be used as a starting point for developing PEPH specific Evaluation work

- NIH PART results and general Program Assessment Rating Tool (PART) framework
- Models of evaluation from the communication and education fields
- Foundation's requirements for evaluation
- Evaluation programs within NIH (other ICs, CTSAs, Roadmap)

Two broader points also came up:

- There is always a fundamental tension when trying to communicate complex information. Messages are clearer when they are simple, but simplifying can strip important nuance/uncertainty. Finding the right balance depends on the situation at hand, who the audience is, what the urgency is, etc. Messages can grow increasingly complex as partnerships mature and relationships are established.
- NIEHS WETP work was frequently mentioned as a model for PEPH, it seems WETP is not as well known as it could be.

## Products

Participants recommended that the PEPH program and the NIEHS develop a variety of different products for the purposes of increasing public awareness of EPH and the institute. For the purposes of this document, we have organized the list of products into two categories: PEPH specific and NIEHS-led.

Recommended Products as part of the PEPH Program

- Fact sheets
- Continuing Educational Units (CEUs)
- Fellowships and internships
- Standards
- Central repository of resources
- Training for communication

- Curricula on EH
  - Medical school
  - Nursing school
  - PK-16 (emphasize teacher development)
- Partnership professionals
- Evaluation tools
- Planning grants
- Multi-level analysis tools
- Presentations
- Evaluation schemes with logic models
- Webinars
- Material guides on effective media outreach
- Training on community-based approaches
- IRB guidelines
- Cumulative exposure tools and methods
- Materials for legislators
- Science and data generated from research
- Partnerships
- Meetings:
  - Communication experts
  - PEPH-related grantees

#### Recommended Products for NIEHS as an institute

- EPH definition
- Definitions of EPH issues
- Webinars on EPH topics
- Strong media team with a Strong communications plan
- Story of NIEHS
- Partnerships with Federal agencies, Foundations and Professional Organizations doing work in EPH

## Processes and Activities

Participants enumerated a variety of processes and activities that the NIEHS and the PEPH program could undertake as the institute begins to re-establish itself in the field of EPH. While some of the recommendations are also products, they are on-going processes that should continue throughout the duration of the PEPH program.

#### Recommendations specific to NIEHS include:

- Sustained communication to Partners, Grantees, and Audience
- Social networking
- Establish a PEPH message and communicate it farther than in the past
- Define clear PEPH Goals
- Branding for NIEHS and PEPH
- Analysis of current PEPH-related Programs
  - Models
  - Approaches
  - Programs
  - Materials
- PEPH sustainability
- Set Priorities and Communicate them clearly and widely

- Market PEPH
- Develop and Manage PEPH expectations
- Identify successful partnerships over past 10 years
- Build partnerships within NIEHS, with other Federal agencies, Foundations, EHP, Journalists, and Professional Societies
- Cultural evaluation of ES programs

Recommendations for the PEPH program include:

- Gap Analyses
- Material evaluation
- Economic analysis of PEPH program and EPH Projects
- Establish best practices
- Establish capacity metrics
- Look to EU as EPH model
- Identify target audiences

## **Conclusion**

This document is a summary of the key points communicated to the NIEHS by the participants of the PEPH Workshop hosted at the NIEHS on June 30 and July 1, 2008. These recommendations build upon the feedback NIEHS received in response to the RFI released in November of 2007. In addition, the information contained in this summary report was used to fashion a 10-year plan for the new Partnerships for Environmental Public Health (PEPH) program. The plan was presented to the NIEHS National External Advisory Council for their consideration and approval ([link to website](#)).

## Appendix Materials

### Environmental Public Health Defined

As the institute looks toward the future and its involvement in environmental public health, it has come up with the following definition of environmental public health based on the input received from the RFI responses and the Workshop.

*Environmental Public Health is the science of conducting and translating research into action to address environmental exposures and health risks of concern to the public.* This is accomplished through the dissemination of science-based information about environmental risks and diseases to communities and other stakeholders. By fostering partnerships between and among community residents/organizations, researchers and other stakeholders in the research process, vital information about the linkages between exposures and disease can be used to promote health and reduce the risk of disease across the populations at highest risk.

### Invited Workshop Participants

|                    |   |
|--------------------|---|
| Anderson, Henry    | Wisconsin Division of Public Health   |
| Brown, Phil        | Brown University, Sociology and Environmental Studies Departments                               |
| Carpenter, Hillary | Minnesota Department of Health  |
| Conti, Lisa        | Florida Department of Health, Division of Environmental Health                                  |
| Eidemiller, Betty  | Society of Toxicology   |
| Farquhar, Doug     | National Conference of State Legislatures   |
| Gehlert, Sarah     | The University of Chicago   |
| Goldstein, Bernie  | University of Pittsburgh, Graduate School of Public Health                                      |
| Hines, Stefani     | University of New Mexico College of Pharmacy/NM Environmental Health Sciences Center            |
| Hricko, Andrea     | University of Southern California Environmental Health Sciences Center, Keck School of Medicine |
| Kupfer, Linda      | Fogarty International Center , NIH  |
| Mirer, Frank       | Environmental/Occupational Health Sciences, Hunter College School of Health Sciences            |
| Moreno, Nancy      | Baylor College of Medicine  |
| Parker, Edith      | University of Michigan School of Public Health  |
| Paulson, Glenn     | University of Medicine and Denistry of New Jersey- School of Public Health                      |
| Redwood, Lyn       | Interagency Autism Coordinating Committee, NIH  |
| Rizzo, Jeanne      | Breast Cancer Fund  |
| Rothman, Nancy     | Temple University, Department of Nursing, CAHP  |
| Shepard, Peggy     | WE ACT for Environmental Justice  |
| Slatin, Craig      | University of Massachusetts Lowell  |
| Wong, Kristine     | Community-Campus Partnership for Health   |

## Commonly Used Acronyms

|         |   |
|---------|---|
| PEPH =  | Partnerships for Environmental Public Health        |
| EPH =   | Environmental Public Health                         |
| CBO =   | Community-based Organization                        |
| CBPR =  | Community-based Participatory Research              |
| NIEHS = | National Institute of Environmental Health Sciences |
| NIH =   | National Institutes of Health                       |
| EJ =    | Environmental Justice                               |
| IC =    | Institutes and Centers (at the NIH)                 |
| CTSA =  | Clinical and Translation Science Award              |
| PART =  | Program Assessment Rating Tool                      |

## PEPH Model

